

**What is claimed is:**

1. A cleaning agent for a substrate comprising [I] an organic acid having at least one carboxyl group and  
5 /or [II] a complexing agent, and [III] an organic solvent selected from the group consisting of (1) monohydric alcohols, (2) alkoxyalcohols, (3) glycols, (4) glycol ethers, (5) ketones and (6) nitriles.
2. The cleaning agent according to Claim 1, wherein  
10 the cleaning agent contains [I] the organic acid having at least one carboxyl group and [II] the complexing agent.
3. The cleaning agent according to Claim 1, wherein the cleaning agent is an aqueous solution.
4. The cleaning agent according to Claim 1, wherein  
15 the organic solvent is one selected from the group consisting of methanol, ethanol, isopropyl alcohol, 2-methoxyethanol, 2-(2-butoxyethoxy)ethanol, ethylene glycol, diethylene glycol monomethyl ether, acetone and acetonitrile.
- 20 5. The cleaning agent according to Claim 1, wherein the complexing agent is one selected from the group consisting of a compound having at least one phosphonic acid group in a molecule, and an ammonium salt or an alkali metal salt thereof.
- 25 6. The cleaning agent according to Claim 5, wherein the compound having at least one phosphonic acid group in a molecule is one selected from the group consisting of nitrogen-containing polyphosphonic acids having 1 to 6 nitrogen atoms and 1 to 8 phosphonic acid groups in

a molecule, an aryl polyphosphonic acid, an alkylene polyphosphonic acid, alkane polyphosphonic acids which may have a hydroxyl group, and an ammonium salt or an alkali metal salt thereof.

5 7. The cleaning agent according to Claim 5, wherein  
the compound having at least one phosphonic acid group  
in a molecule is one selected from the group consisting  
of nitrogen-containing polyphosphonic acids having 1 to  
6 nitrogen atoms and 1 to 8 phosphonic acid groups in  
10 a molecule, alkane polyphosphonic acids which may have  
a hydroxyl group, and an ammonium salt or an alkali metal  
salt thereof.

8. The cleaning agent according to Claim 6, wherein  
the nitrogen-containing polyphosphonic acids having 1  
15 to 6 nitrogen atoms and 1 to 8 phosphonic acid groups  
in a molecule is one selected from the group consisting  
of an alkylamino poly(alkylphosphonic acid), a mono- or  
polyalkylenepolyamine poly(alkylphosphonic acid), a  
nitrilo-poly(alkylphosphonic acid), and an ammonium  
20 salt or an alkali metal salt thereof.

9. The cleaning agent according to claim 1, wherein  
the complexing agent is one selected from the group  
consisting of:

ethylenediaminebis(methylenephosphonic acid) [EDDPO];  
25 ethylenediaminetetrakis(ethylenephosphonic acid);  
ethylenediaminetetrakis(methylenephosphonic acid)  
[EDTPO];  
hexamethylenediaminetetrakis(methylenephosphonic  
acid);

isopropylenediaminebis(methylenephosphonic acid);  
 isopropylenediamintetra(methylenephosphonic acid);  
 propanediaminetetra(ethylenephosphonic acid) [PDTMP];  
 diaminopropanetetra(methylenephosphonic acid) [PDTPPO];  
 5 diethylenetriaminepenta(ethylenephosphonic acid)  
 [DEPPO];  
 diethylenetriaminepenta(methylenephosphonic acid)  
 [DETPPO];  
 triethylenetetraminehexa(ethylenephosphonic acid)  
 10 [TETHP];  
 triethylenetetraminehexa(methylenephosphonic acid)  
 [TTHPO];  
 nitrilotris(methylenephosphonic acid) [NTPO];  
 ethylidenediphosphonic acid;  
 15 1-hydroxyethylidene-1,1'-diphosphonic acid [HEDPO];  
 1-hydroxypropylidene-1,1'-diphosphonic acid; and  
 1-hydroxybutylidene-1,1'-diphosphonic acid.

10. The cleaning agent according to Claim 1, wherein  
 the organic acid is an organic acid having 2 or 3 carboxyl  
 20 groups.

11. The cleaning agent according to Claim 1, wherein  
 the organic acid is a dicarboxylic acid or an  
 oxycarboxylic acid.

12. The cleaning agent according to Claim 11,  
 25 wherein the oxycarboxylic acid is an oxydicarboxylic  
 acid or an oxytricarboxylic acid.

13. The cleaning agent according to Claim 11,  
 wherein the dicarboxylic acid is one selected from the  
 group consisting of an oxalic acid, a malonic acid, a

succinic acid, a glutaric acid, an adipic acid, a pimelic acid, a maleic acid, a fumaric acid and a phthalic acid.

14. The cleaning agent according to Claim 11, wherein the oxycarboxylic acid is a malic acid, a tartaric acid, or a citric acid.

15. The cleaning agent according to Claim 1, wherein the organic acid is a dicarboxylic acid or an oxycarboxylic acid; the complexing agent is one selected from the group consisting of nitrogen-containing polyphosphonic acid having 1 to 6 nitrogen atoms and 1 to 8 phosphonic acid groups in a molecule, alkane polyphosphonic acids which may have a hydroxyl group, and an ammonium salt or an alkali metal salt thereof; and the organic solvent is one selected from the group consisting of monohydric alcohols, alkoxyalcohols, glycols, glycol ethers, ketones and nitriles.

16. The cleaning agent according to Claim 1, wherein pH of the cleaning agent is 0.5 to 6.5.

17. The cleaning agent according to Claim 1, wherein the substrate is a semiconductor.

18. The cleaning agent according to Claim 1, wherein the substrate is one with metallic wiring provided thereon.

19. The cleaning agent according to Claim 18, wherein the metallic wiring is a copper wiring.

20. The cleaning agent according to Claim 1, wherein the substrate is one treated with a slurry containing benzotriazole or a derivative thereof.

21. A cleaning method for a surface of substrate,

which comprises treating the surface of substrate with the cleaning agent according to Claim 1.

22. The cleaning method according to Claim 21, wherein the treatment with the cleaning agent is dipping  
5 the surface of substrate in the cleaning agent according to Claim 1 or spraying said cleaning agent on the surface of substrate.

23. The cleaning method according to Claim 21, wherein physical cleaning is further used in  
10 combination.

24. The cleaning method according to Claim 21, wherein the substrate is one after subjecting to a chemical mechanical polishing process.

25. The cleaning agent according to Claim 21,  
15 wherein the substrate is a semiconductor.

26. The cleaning method according to Claim 21, wherein the substrate is one with metallic wiring provided thereon.

27. The cleaning method according to Claim 26,  
20 wherein the metallic wiring is a copper wiring.

28. The cleaning method according to Claim 21, wherein the substrate is one after subjecting to the treatment process with a slurry containing benzotriazole or a derivative thereof.

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